

AMENDMENTS TO THE SPECIFICATIONS

Please replace paragraph [0009] with the following amended paragraph:

- 5 [0009] The invention, therefore, according to one aspect provides an operations, management, capacity, and services (OMCS) tool for assessing business solutions comprising alternative network architectures and management processes for a telecommunications network. The OMCS tool comprises modules for receiving data and options for plurality of network architectures and management processes; and for
- 10 engineering the plurality of network architectures and the management processes. The management processes comprise network management processes and service and customer management processes for managing the plurality of network architectures. The OMCS tool comprises modules for determining suppliers' equipment and management processes costs for the plurality of network architectures, the network
- 15 management processes, and the service and customer management processes. The OMCS tool also comprises modules for determining, based on the costs of the plurality of network architectures and the management processes, business parameters for the business solutions; and for storing and displaying the business parameters for the business solutions for the telecommunications network, comprises a means for
- 20 analyzing business parameters for a plurality of network architectures; and comparing the business parameters for said network architectures for determining cost savings of one network architecture versus another and for determining a business solution that articulates the network architecture for reducing total expenditure.

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Please replace paragraph [0010] with the following amended paragraph:

- [0010] The business parameters comprise [[the]] total expenditure; and wherein the total expenditure comprises capital expenditure (CAPEX) and operational
- 30 expenditure (OPEX). The CAPEX comprises a network architecture cost; taxes; interests; and ~~depreation~~ depreciation and amortization (D/A) expenses. The OPEX comprises a management processes cost; a leasing cost; and sales, general and

administration (SG&A) expenses.

Please replace paragraph [0011] with the following amended paragraph:

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[0011] The business parameters further comprise financial statistics including
revenue; capacity; return on investment (ROI); earnings before interest, taxes, and
~~depreciation~~ depreciation and amortization (EBITDA); earnings before interest and
taxes (EBIT); OPEX as percentage of revenue; and total expenditure as percentage of
10 revenue.

Please replace paragraph [0012] with the following amended paragraph:

15 [0012] The OMCS tool comprises ~~[[means]]~~ modules for receiving traffic data;
customer data; and financial and labor data; and for receiving technology options
which comprise analyzing the business parameters ~~comprises means for analyzing the~~
~~business parameters for a network architecture having~~ one or more of the following
technology: TDM, ATM, FR, IP, VPN, MPLS, and optical Ethernet including fiber,
20 synchronous optical network (SONET), resilience packet ring (RPR), and dense
wavelength division multiplexing (DWDM), for a network architecture for a business
solution. This means ~~The OMCS tool~~ further comprises ~~a means~~ modules for
receiving management processes options for the network management processes and
the service and customer management processes for managing the network
25 architecture for the business solution. ~~-computing the business parameters for each of~~
~~said network architectures over a pre-determined study period.~~

Please replace paragraph [0013] with the following amended paragraph:

30 [0013] The OMCS tool comprises ~~[[means]]~~ modules for validating and calibrating
the received data and options and the costs for the plurality of network architectures

and the management processes for the business solutions, comparing the business parameters for the plurality of network architectures comprises means for reporting the business parameters for each of said network architectures over said pre-determined study period, wherein the business solution comprises the network architecture with the least total expenditure.

Please replace paragraph [0014] with the following amended paragraph:

[0014] The OMCS tool further comprises ~~[[means]]~~ modules for engineering a plurality of ~~the~~ network architecture ~~architectures~~ for ~~the business solution; and a pre-determined input user data;~~ determining a network architecture cost and a leasing cost for ~~the network architecture for the business solution, each of said network architectures over a pre-determined study period;~~ engineering management processes for managing each of said network architectures; and determining a management processes cost for said management processes over said pre-determined study period. The tool further comprises means for inputting user data; and validating and calibrating the input user data; the network architecture cost; the leasing cost; and the management processes cost for each of said network architectures.

Please replace paragraph [0015] with the following amended paragraph:

[0015] The OMCS tool means ~~module~~ module for engineering the plurality of network ~~architecture~~ architectures comprises ~~a means~~ modules for determining an owned network elements (NEs) count; a leased NEs count; an owned customer premise equipment (CPE) count; a leased CPE count; an owned links count; a leased links count; and a leased ports count, ~~for each of said network architectures; and wherein said~~ The network architecture architectures comprises having NEs, CPE, and links from the same or different equipment suppliers.

Please replace paragraph [0016] with the following amended paragraph:

[0016] The ~~OMCS tool means~~ module for determining the network architecture cost ~~and the leasing cost for each of the plurality of network architectures~~ comprises
5 [[means]] modules for determining an owned cost (a price) per network element (NE), a footprint per NE cost, [[and]] a power consumption per NE cost; ~~determining~~ an owned cost (a price) per CPE, a footprint per CPE cost, [[and]] a power consumption per CPE cost; ~~and determining~~ an owned cost (a price) per link and a link transmission rate.
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Please replace paragraph [0017] with the following amended paragraph:

[0017] The [[means]] module for determining the network architecture cost ~~further~~
15 comprises [[means]] modules for computing a total owned NEs cost; a total owned CPE cost; and a total owned links cost for ~~each of said the network architecture architectures for the business solution, over said pre-determined study period. The means for determining the leasing cost comprises a means for computing a total footprints cost and a total power consumptions cost for said NEs and CPE over said~~
20 ~~pre-determined study period.~~

Please replace paragraph [0018] with the following amended paragraph:

[0018] The ~~OMCS tool means~~ module for determining the leasing cost further comprises [[means]] modules for determining a leased per NE cost, a footprint per NE cost, [[and]] a power consumption per NE cost; ~~determining~~ a leased per CPE cost, a footprint per CPE cost, [[and]] a power consumption per CPE cost; ~~determining~~ a leased per link cost ~~and a link transmission rate~~; ~~determining~~ a leased link per unit
30 length cost, a unit length per link count, and a link transmission rate; and ~~determining~~ a leased per port cost. This [[means]] module further comprises [[means]] modules for computing a total leased NEs cost; a total leased CPE cost; a total footprints cost and

a total power consumptions cost for [[said]] the NEs and CPE; a total leased links cost; a total leased links [[for]] per unit length cost; and a total leased ports cost for each of said the network architecture architectures for the business solution, ever said pre-determined study period.

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Please replace paragraph [0019] with the following amended paragraph:

[0019] The OMCS tool comprises [[means]] module for engineering the management processes ~~comprises means for engineering~~ network management processes; and service and customer management processes, which have wherein said management processes having said processes from the same or different management processes suppliers for managing the network architecture for the business solution.
The tool also comprises module for determining a management processes cost which comprises a network management processes cost and a service and customer management processes cost.

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Please replace paragraph [0020] with the following amended paragraph:

[0020] The [[means]] module for engineering the network management processes comprises ~~a means modules for selecting engineering~~ one or more of the following processes: inside plant maintenance; outside plant maintenance; network engineering; network provisioning; installation; testing; and repairs.

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Please replace paragraph [0021] with the following amended paragraph:

[0021] The [[means]] module for engineering the service and customer management processes comprises ~~a means modules for selecting engineering~~ one or more of the following processes: customer relationship management (CRM); work order management (WOM); network inventory management ([[NAI]] NIM); service

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activation and provisioning (SAP); fault management (FM); performance management (PM); accounting and billing; and security management.

- 5 Please replace paragraph [0022] with the following amended paragraph:

[0022] The OMCS ~~tool means~~ module for determining the network management processes cost comprises ~~a means~~ modules for determining ~~a process cost per NE for each of said the~~ the network management processes cost based on whether the operations of each of the network management processes is performed using [[for]] one or more of the following; a manual operations mode; a mechanized operations mode; and a manual and mechanized operations mode. The [[means]] module for determining the service and customer management processes cost ~~further~~ comprises ~~a means~~ modules for determining ~~a process cost per link for each of said the~~ the service and customer management processes cost based on whether the operations of each of the service and customer management processes is performed using [[for]] one or more of the following; a manual operations mode; a mechanized operations mode; and a manual and mechanized operations mode.

- 20 Please replace paragraph [0023] with the following amended paragraph:

[0023] Another aspect of the invention provides a computer program containing instructions for directing a computer to perform a process for assessing business solutions comprising alternative network architectures and management processes for a telecommunications network, analyzing business parameters for a plurality of network architectures, and comparing the business parameters for said network architectures over a pre-determined study period.

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Please replace paragraph [0024] with the following amended paragraph:

- [0024] The program ~~comprises means~~ contains instructions for causing the computer to receive traffic data, customer data, and financial and labor data;
5 technology options, which comprise at least one of the following technology: TDM, ATM, FR, IP, VPN, MPLS, and optical Ethernet including fiber, SONET, RPR, and DWDM, for a network architecture for a business solution; and management
processes options for the network management processes and service and customer
management processes for managing the network architecture for the business
10 solution, for the plurality of network architectures; analyze the received data to
compute the business parameters for said network architectures; and compare said
computed business parameters for said network architectures for determining cost
savings of one network architecture versus another and for determining a business
solution that articulates the network architecture for reducing total expenditure.
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Please replace paragraph [0025] with the following amended paragraph:

- [0025] The program contains instructions ~~[[means]]~~ for causing the computer to
20 engineer the network architecture for the business solution; and compute a network
architecture cost and a leasing cost for the network architecture for the business
solution, receive the data for the plurality of network architectures comprises means
for causing the computer to receive input user data; network architectures data; and
management processes data for said network architectures. The input user data
25 comprises traffic data; customer data; and financial and labour data for the plurality of
network architectures. The network architectures data comprises network elements
(NEs) data; CPE data; links and ports data; and further comprises network
architectures options for said network architectures. The management processes data
comprises network management data; service and customer management data; and
30 further comprises network management options; and service and customer
management options for managing each of said network architectures.

Please replace paragraph [0026] with the following amended paragraph:

[0026] The program contains instructions [[means]] for causing the computer to
5 engineer at least one of the following network management processes: inside plant
maintenance, outside plant maintenance, network engineering, network provisioning,
installation, testing, and repairs; and engineer at least one of the following service and
customer management processes: CRM, WOM, NIM, SAP, FM, PM, accounting and
billing, and security management, for managing the network architecture for the
10 business solution. The program also contains instructions for computing a
management processes cost, which comprises a network management processes cost
and a service and customer management processes cost for the network, service and
customer management processes based on whether the operations of each of these
management processes is performed manually, using mechanized systems (i.e.,
15 operations support systems (OSS)) or both based on the Service Provider operating
environment, analyze the received data comprises a means for causing the computer to
compute the business parameters for said network architectures over said pre-
determined study period.

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Please replace paragraph [0027] with the following amended paragraph:

[0027] The program contains instructions [[means]] for causing the computer to
compute the ~~compare said~~ business parameters for the business solutions over a pre-
25 ~~the business parameters for the business solutions~~ said network architectures comprises a
means for causing the computer to tabulate and graphically chart the business
parameters for said network architectures over [[said]] the predetermined study
period.

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Please replace paragraph [0028] with the following amended paragraph:

[0028] In accordance with a first embodiment of this invention, the program is a self-contained Microsoft EXCEL-based decision support software tool comprises a plurality of EXCEL workbooks. A number of EXCEL workbooks are for receiving input-user data [[:]] and options for plurality of network architectures and management processes for the business solutions; and others for engineering the network architectures and the management processes and determining their costs. Other workbooks are for determining, storing, and displaying the business parameters for the business solutions for the telecommunications network, architectures data and options; and management processes data and options. A workbook is for analyzing and combining the received data; and another workbook for computing the business parameters for a plurality of network architectures. In yet another workbook, the computed business parameters are tabulated and graphically charted for each of said network architectures.

Please replace paragraph [0029] with the following amended paragraph:

[0029] In accordance with a second embodiment of this invention, the program is a self-contained software tool comprises a plurality of sub-programs linked together and the sub-programs are written in one or more of the following computer languages: machine language, C/C++, virtual basic, and Java. A number of sub-programs are for receiving input-user data [[:]] and options for plurality of network architectures and management processes for the business solutions; and others for engineering the network architectures and the management processes and determining their costs. Other sub-programs are for determining, storing, and displaying the business parameters for the business solutions for the telecommunications network, architectures data and options; and management processes data and options. A sub-program is for analyzing and combining the received data; and another sub-program is for computing the business parameters for a plurality of network architectures. The computed business parameters are then passed to another sub-program for tabulating

and graphically charting the business parameters for each of said network architectures.

- 5 Please replace paragraph [0030] with the following amended paragraph:

[0030] A further aspect of the invention provides a method for assessing business solutions comprising alternative network architectures and management processes for a telecommunications network. The method comprises the steps of instructing a
10 computer to receive data and options for plurality of network architectures and management processes; engineer a plurality of network architectures and management processes; determine suppliers' equipment and management processes costs; determine, based on the costs of the plurality of network architectures and the management processes, business parameters for the business solutions; and store and
15 display the business parameters for the business solutions for the telecommunications network, developing business solution for a telecommunications network using the OMCS tool. The method comprises the steps of receiving data for a plurality of network architectures; analyzing the received data to compute business parameters for said network architectures; and comparing said computed business parameters for said
20 network architectures for determining cost savings of one network architecture versus another and for determining a business solution that articulates the network architecture for reducing total expenditure.

- 25 Please replace paragraph [0036] with the following amended paragraph:

[0036] This invention provides an operations, management, capacity, and services (OMCS) tool and method for developing assessing business solution for a telecommunications network. The business solution comprises plurality of network
30 architectures having various technologies and management processes for managing the plurality of network architectures. The management processes replicate today's operations and management networks for Service Providers; and the management

processes cost is determined based on whether the operations of these management processes is performed manually, using mechanized systems (i.e., OSS) or both based on the Service Provider operating environment. The OMCS tool automates the calculation of the business parameters for the business solution a plurality of network architectures and enables the Service Provider to compare comparison of technology alternatives for [[said]] the network architectures for the business solutions. The OMCS tool provides a comprehensive view of the business solution for the telecommunications network that enables the Service Provider to quantify articulates the savings of one network architecture business solution versus another and identifies the areas for cost reduction.

Please replace paragraph [0037] with the following amended paragraph:

[0037] Advantageously, the costs for managing and operating the network architecture are integrated with the cost of the network architecture in the total cost of the business solution and the Service Provider would be able to identify the areas for enhancing or reducing the management and operating cost of the telecommunications network. Reducing the management and operating cost of a telecommunications network is critical to the survival of the Service Provider. The embodiments of the present invention provide improved software tools and methods for business solution for a telecommunications network that would overcome the shortcomings and limitations of the prior arts.

Please replace paragraph [0061] with the following amended paragraph:

[0061] The input user data 110 module enables an analyst to input user data and options for a plurality of network architectures to be modeled. The input user data comprises traffic data; customer data; and financial and ~~labor~~ labor data. The options enable the analyst to select technology alternatives for network architectures and management processes for managing said network architectures business solutions for

a telecommunications network.

Please replace paragraph [0067] with the following amended paragraph:

5 [0067] The business parameters comprise total expenditure, wherein the total expenditure comprises capital expenditure (CAPEX) and operational expenditure (OPEX). The CAPEX comprises a network architecture cost, taxes, interests, and
10 ~~depreciation~~ depreciation and amortization (D/A) expenses; and the OPEX comprises a management processes cost; a leasing cost; and sales, general and administration (SG&A) expenses.

Please replace paragraph [0068] with the following amended paragraph:

15 [0068] The business parameters further comprise financial and business statistics comprising revenue; capacity; return on investment (ROI); earnings before interest, taxes, and ~~depreciation~~ depreciation and amortization (~~EBITDA~~ EBITDA); earnings before interest and taxes (EBIT); OPEX as percentage of revenue; and total
20 expenditure as percentage of revenue.

Please replace paragraph [0069] with the following amended paragraph:

25 [0069] The reporting business solutions 170 module reports in tables and graphical charts the business parameters for ~~each of said network architectures~~ the business solutions over said pre-determined study period.

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Please replace paragraph [0087] with the following amended paragraph:

[0087] The ARCH1 520 having switching nodes 521 and services nodes 522 from supplier A 501; add/drop nodes [[524]] 523 and cross-connect nodes 524 from
5 supplier B 502; and other nodes 525 from supplier C 503. The ARCH2 530 having switching nodes 531 and services nodes 532 from supplier A 504; add/drop nodes [[534]] 533 and cross-connect nodes 534 from supplier B 505; and other nodes 535 from supplier C 506. The ARCH3 540 having switching nodes 541 and services nodes 542 from supplier A 507; add/drop nodes [[544]] 543 and cross-connect nodes 544
10 from supplier B 508; and other nodes 545 from supplier C 509.

Please replace paragraph [0094] with the following amended paragraph:

15 [0094] A total footprints cost 675 is determined by multiplying the sum of the owned CPE count 650 and the leased CPE count 663 by the footprint per CPE cost 670. A total owned CPE cost 660 is determined by multiplying the owned CPE count 650 by the price per CPE 655. A total leased CPE cost 680 is determined by multiplying the leased CPE count 663 by the leased per CPE cost 665. A total power
20 consumptions cost 690 is determined by multiplying the sum of the owned CPE count 650 and the leased CPE count 663 by the power consumption per CPE cost 685.

Please replace paragraph [0097] with the following amended paragraph:

25 [0097] The ARCH1 720 having T1 721 and T3 722 links from supplier A 701; E1 723 and E3 724 links from supplier B 702; and DSL links 725, 10/100 BT 726, and 100/1000 BT 727 links from supplier C 703. The ARCH2 730 having fiber 100FX 731 from supplier A 704; OC3 732, OC12 733, OC48 734, and OC 192 links 735
30 from supplier B 705; and DWDM ring 736, RPR ring 737, and 1000SX/1000LX 738 from supplier C 706. The ARCH3 740 having SONE/T ring 741 and microwave 742

links from supplier A 707; fiber 100 FX 743 and 100/1000 BT 744 links from supplier B 708; and DSL 745 and T3 746 links from supplier C 709.

- 5 Please replace paragraph [0151] with the following amended paragraph:

[0151] Procedure 1700 adjusts and updates data (block 1780) as required and re-analyzes the business parameters (block 1740). When analysis is completed for the pre-determined study period, procedure 1700 reports the business parameters for said
10 network architectures over the pre-determined study period. The reporting of said business parameters comprises tabulating and graphically charting the business parameters (block 1790) for each of the network architectures over said pre-determined study period, thus, finishing the procedure 1700 (block 1795).

- 15 Please replace paragraph [0168] with the following amended paragraph:

[0168] Figure 21 shows an illustrative graphical output from an execution of the OMCS tool of Figure 1. The graph 2100 plots dollars per Mbps [[2010]] 2110 over
20 five years study period 2120, year0, year1, year2, year3, and year4 for five network architectures ARCH1 2130, ARCH2 2135, ARCH3 2140, ARCH4 2145, and ARCH5 2150. The five architectures represent the five different technologies described in Figure 18 above. In graph 2100 it can be seen that the return on investment for ARCH5 2050 is higher than the other architectures.

- 25 Please replace paragraph [0169] with the following amended paragraph:

[0169] The embodiments of this invention provide a software tool that automates
30 the calculation of [[the]] business parameters for a plurality of network architectures business solutions for a telecommunications network. A user of the OMCS tool is able to select, engineer, and cost plurality of network architectures having various

technologies and different network, service, and customer management processes for a telecommunications network. The management processes replicate today's operations and management networks for Service Providers. The OMCS tool enables comparison of different network architectures comprising comprise NEs, CPE, and
5 links from the same or different equipment suppliers, and have network, service, and customer management processes from the same or different management processes suppliers.

10 Please replace the ABSTRACT with the following amended ABSTRACT:

An operations, management, capacity, and services (OMCS) tool and method are presented for assessing business solutions comprising alternative network architectures and management processes for a telecommunications network. The
15 OMCS tool comprises modules for selecting, engineering, and costing plurality of network architectures having various technologies and management processes for the business solutions. The management processes create and establish management networks for managing the plurality of network architectures. The OMCS tool further comprises modules for determining, storing, and displaying business parameters for
20 the business solutions, analyzing business parameters for a plurality of network architectures; and comparing the business parameters for said network architectures for determining cost savings of one network architecture versus another and for determining a business solution that articulates the network architecture for reducing total expenditure. The business parameters comprise capital expenditure (CAPEX),
25 operational expenditure (OPEX), total expenditure, revenue, capacity, return on investment (ROI), and other business and financial statistics. The OMCS tool and method determine the business solution for an owned, a leased, or partially owned and leased telecommunications network. The business solution further comprises network architecture having network elements (NEs), customer premise equipment (CPE), and
30 links from the same or different equipment suppliers; and management networks for managing the network architecture having network, service, and customer management processes from the same or different management processes suppliers.